THE

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ASSYRIA—NINEVEH.

MOUNT ARARAT.

PHYSICAL GEOGRAPHY.

THE elevated table-lands of Iran, the great Highlands of Western Asia, extend in a belt of considerable width, but of much greater length, from the course of the Indus to the shores of the Mediterranean, passing between the Caspian Sea and the Persian Gulf, and between the Black Sea and the Levant. The eastern portion of this region is occupied by Affghanistan, the centre by Persia, the west by Turkey. For the most part its surface is

capable of cultivation; and though large tracts are now resigned to the rugged wildness of nature, in ancient times these supported a numerous, industrious, and energetic population; and the whole region was the seat of mighty nations whose names are famous in history, though in general little else now remains to tell of their past greatness than the ruined remains of cities thickly scattered here and there, piles of massive architecture on which the suns of centuries and millenniums have looked, uninhabited indeed for ages, yet still standing in mute and desolate grandeur.

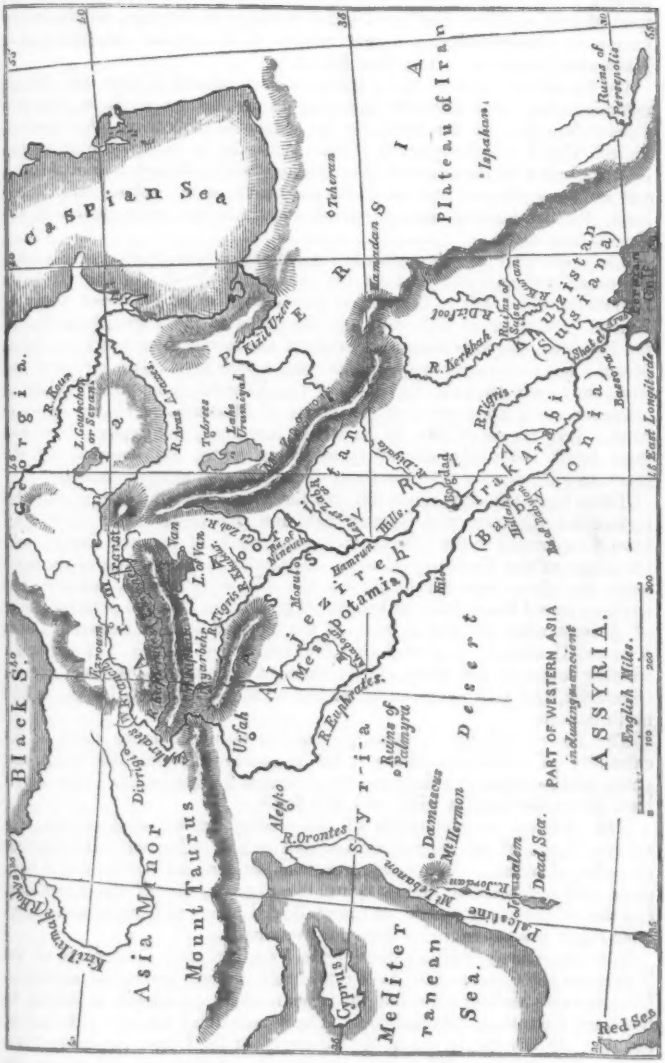
Between the Caspian and the head of the Persian Gulf this great plateau of Iran, which had averaged a breadth of nearly 500 miles, becomes much narrower, scarcely retaining half that width; but at the same time it assumes a loftier elevation. An Alpine region commences, of ragged, conical, mountain masses, which increase in height as the traveller proceeds to the north-west, until about midway between the southern extremities of the Caspian and the Black Seas, the renowned mountain of Ararat rears its snowy peaks to the skies. This is the loftiest land in Western Asia, the taller of its cones attaining an elevation of more than 17,000 feet. The actual height of the mountain itself is, however, much less than this, for the table-land of Armenia, on which its base rests, is 7,000 feet above the level of the sea. Travellers speak in admiration of the grandeur of this famous peak. Sir Robert Ker Porter, who approached it from the north, paints in glowing colours the magnificence of the spectacle that met his eye when Ararat first burst upon the view, rising from a wide-spread verdant plain, watered by the clear and swift Araxes, and covered with populous villages. He enjoyed the unusual advantage of seeing the glorious mountain quite unveiled by clouds from the base to the summit, and the sparkling snow-white cones shining out in dazzling splendour against the clear blue sky.

From the southern side of this mountain, ridges of lower elevation branch off to the south and south-west, inclosing the romantic and beautiful Lake Van, the ancient Arsissa, and then stretch away towards the south-east in a rugged region of precipitous peaks and deep romantic glens and valleys. This is the region of Koordistan, the home of the wild, savage, and free Koords, whose hand, like that of the sons of Ishmael, whom they much resemble, may be said to be against every man, and every man's hand against them.

The mountainous region that girds the base of Ararat gives birth to the great river-system of Western Asia, which, like most of the great watersheds of this continent, is double. The Euphrates and the Tigris flow nearly parallel to each other through a basin of 1,850 miles in length, and at its mouth fall by a common channel into the head of the Persian Gulf.

This basin, at its upper part, has a breadth of 7° of longitude, from about 36½° E. to 43½° E., but narrows towards its lower extremity, where its width is not more than 1½°, from 48° E. to 49½° E. Into the area so bounded, however, the ridged and knotted mountain mass that incloses Lake Van projects like a great promontory, dividing the sources of the Euphrates, which are on its northern side, from those of the Eastern Tigris, the Khabour, and the Zab, which fall from its southern declivities.

The Euphrates, from its springs near Mount Ararat, flows along to the westward for about 250 miles, vainly seeking an outlet through the mountain chain of Taurus that bounds its southern bank. At length the full river, its constituent branches having united, precipitates itself through a chasm in the chain, but a few miles distant from the source of the Tigris.


Caspian Sea
Georgia.
Asia Minor
Mount Taurus
Black S.
Kizil Irmak (Halys)
Mediterranean Sea.
Cyprus
Syria
Mesopotamia
Al Jezireh
Desert
Plateau of Iran
Persia
Ionia
Turkarabi
Susiana
Chaldea
Babylonia
Ruins of Persepolis
Ispahan
Tehran
Hamadan
Kirkuk
Mosul
Nineveh
Erbil
Van
Lake Van
Lake Urumiyah
Tigris
Euphrates
R. Khabour
R. Kerkhah
R. Diyalah
Hamrun Hills
Sinjar Hills
Ruins of Palmyra
Aleppo
R. Orontes
Damascus
Mt. Lebanon
Mt. Hermon
Jerusalem
Dead Sea
R. Jordan
Palestine
Red Sea
Basra
Persian Gulf
PART OF WESTERN ASIA
in Enlargement
ASSYRIA.
English Miles.
0 100 200 300

From this point the two sister rivers diverge, both, however, pursuing a general south-easterly course, and again approach, thus enclosing a large tract of level country, now the Turkish province of Algezira, but anciently known as Mesopotamia, a Greek version of its original Semitic name, Naharaim, signifying "The Two Rivers."

On the eastern bank of the Tigris, which separated it from the Mesopotamian plain, was situated, according to ancient geographers, Assyria Proper, bounded on the north by the Niphates mountains (the modern Nebad Tagh), which separated it from Armenia, on the north-east by the Zagros chain (the mountains of Koordistan), which divided it from Media, and on the south-east and south by the provinces of Susiana and Babylonia, the flat alluvial districts which constitute the lower portion of the Euphratean basin.

The upper part of this region is rugged and mountainous, lying among the ridges and valleys that form the southern declivities of the Niphates mountains, which are in fact the eastern extremity of the great chain of Taurus. A range of hills, dividing the valley of the Tigris from that of the Khabour, descends along the banks of the former river nearly as far as Mosul; but to the south-west of this point a vast level plain stretches out from the river's banks to the bases of the Koordish mountains, similar in character as in appearance to the plains of Mesopotamia on the opposite bank. Low ranges of hills, of sandstone, limestone, and gypsum, here and there break the uniformity of these plains, which are bounded by the Hamrun hills, not far from the thirty-fourth parallel of north latitude.

Three large tributary rivers fall into the Tigris from the east, within this region, the Khabour, the Greater Zab, and the Lesser Zab. These all have their sources in the lofty snow-clad mountains of northern Koordistan; the course of the Khabour (called, to distinguish it from a river of the same name that flows into the Euphrates, the *Upper* Khabour), however, has not been traced throughout its length. The Greater Zab, the principal river of Assyria after the Tigris, rises in the elevated plateau between Lakes Van and Urumiyah, at a level of 7,000 feet above the sea. It pursues a winding course of 200 miles, chiefly among the mountains, receives several tributaries, and falls, a stream of 60 feet in width, into the Tigris, in 36° north latitude.

The Lesser Zab has its principal sources about 20 miles south of the extremity of Lake Urumiyah; it has a course of about 100 miles, and pours into its superior a deep and rapid stream 25 feet broad. The Tigris itself has at this point a width of 1,500 feet.*

The physical characteristics of the country under consideration, the original home of the renowned Assyrian nation, differ with the varying elevation of surface. Mr. Ainsworth, who has personally examined it with great skill and acumen, divides it into two districts, that of the mountains, and that of the sandy plains; the low alluvial plains of Susiana and Babylonia are at present excluded from our examination.

The mountainous region around Lake Van, including the sources of the Tigris and the Greater Zab, have a tolerably uniform geological structure. Granite rocks are met with, but the igneous rocks, considered to belong to the later formations, predominate. These mountains are not deficient in metals. At Divrigi, on one of the tributaries of the Upper Euphrates, vast masses of native iron, 3 feet thick, are found. A little lower down on the same river there are silver mines, with the following ores,—argentiferous

* Or, about half as wide again as the Thames at London Bridge.

galena, a sulphuret of lead, silver, antimony, and iron; a sulphuret of antimony and silver. Near the sources of the Tigris there are copper mines, said to yield 2,250,000 lbs. annually. Silver mines occur again to the eastward of the same range. The lofty Koordish mountains between the great lakes and the Tigris present similar conformations. In the valley of the Greater Zab there are veins of lead, which are worked.

The hilly country merging into uneven plains, between the mountains and the banks of the Tigris, consist almost wholly of chalk, and the overlying deposits, interrupted here and there by igneous rocks. At Hit are celebrated fountains of naphtha and bitumen in a magnesian limestone. In the neighbourhood of Mosul red sands and sandstones prevail, and extend to the Hamrun hills. The Kufri hills, to the south-west of the lesser Zab, are composed of fresh-water limestones, gypsum, and sandstone, with deposits of bitumen, naphtha, sulphur, and salt. There are burning fountains of naphtha here, and at the pass of the Tigris through the Hamrun hills.

The botany of Mount Taurus is particularly rich, especially in its trees and shrubs, but this is chiefly true of its central and northern districts; the southern parts, with which we have principally to do, are comparatively defective. Pines, oaks, and ashes, are the most abundant forest-trees, and the sides of the mountains are often well wooded with these to their summits. The walnut and the mulberry are also common. The plane attains an enormous size. The declivities that face the south are sheeted with vineyards and orchards; pears, apples, apricots, plums, figs, almonds, and olives yield their fruits in abundance, and of excellent quality. Wheat and barley are cultivated with success. Many of the beautiful flowering plants and bulbs of our gardens have their native country here; the daphne, the myrtle, the oleander, the guelder rose, the tree pink, the clematis, the jasmine, the honeysuckle, and the rhododendron, are enumerated among the wild plants and shrubs; and some of the sheltered valleys are said, in spring, to be as gay as a flower-garden with the brilliant blossoms of bulbous and herbaceous plants.

On the hills and plains there is a great scarcity of timber-trees, and the annual or tender plants are few; "the tough stems of perennials alone seem able to withstand the excessive variations of temperature." Wormwood is characteristic of this region; and plants of the Borage and Cruciferous tribes, abound, with species of milk vetch and mimosa.

"For two months in the year, namely October and November, vegetation is at a stand-still; everything is burnt up, and no new forms appear; but after this period the *Nile* clouds from the Lebanon in Syria, and reverses in the mountain temperatures to the north and east over Mesopotamia and Adiabene, bring down moderate but refreshing rain. The brown and fallow colour of the soil changes; grasses begin to spread and increase: and notwithstanding the subsequent frost and storm, some of the Daisy tribe bud, but do not flower. But the succession of vegetation is kept up by those families which have succulent roots, nodes, or bulbs, which preserve moisture so as to insure life even amidst the most arid soil. Sleeping during the summer heats, they awake to activity with the first rains, and some send forth prematurely their leaves, or even their buds, in October. Among these are a colchicum, a tulip, a crocus, an ixia, and an arum. They are soon, however, enveloped in snow, or blasted by the wintry winds; till early in spring, when the same precocious flowers make their appearance with all that vivid beauty of colour and variety of form which

have lent to the poet and the painter their not always fabulous pictures of the East."*

In spring, plants of the Lily and Amaryllis families, and their allies, are abundant; in summer, woolly, thorny, prickly, and spinous species prevail; thistles of various genera cover whole districts with their aculeated foliage, and tufted heads of blossom. Aromatic birds of the Labiate family also characterize the plains, as various species of thyme, marjoram, betony, mint, &c. Two species of liquorice are common on cultivated lands.

The kinds of grain and pulse that are fit for the food of man are unusually numerous in these primeval seats of human habitation. Mr. Ainsworth enumerates wheat, barley, guinea-corn (of two kinds), lentils, chick-peas, two kinds of vetches, peas, kidney-beans, and medick. Esculent vegetables include most of the pot-herbs used in Europe, several sorts of cucumbers, gourds, melons, pumpkins, and squashes, the ochro (the edible *Hibiscus*), the egg-plant or love-apple, and the tomato, and a species of mushroon or truffle, which is so abundant as to constitute the principal food of the Bedouins in spring.†

The fields furnish capers, borage, mallows, sour docks, water-cress, wild-mustard, asparagus, Syrian hart-wort, and many other plants useful as salads or condiments. Around Mosul, the gummy roots of a species of Scorzonera afford a plentiful nutriment. The leaves of lettuces, sow-thistles, and thistles are eaten, as are also the bulbs and corms of onions, crocusses, and hyacinths. Tobacco is cultivated, as are also sesame, the castor-oil shrub, hemp, fenugreek cotton, and bastard saffron. The leaves of a gigantic arum are used as paper; henna, with which the Oriental women dye their finger-nails, is obtained from Lawsonia inermis; and gum tragacanth from milk vetches, of no fewer than twelve species. The members of the Euphrates Exploring Expedition often used a wild kind of atriplex as a culinary vegetable: its taste resembled that of spinach, to which it is botanically allied.

Among the fruits of the Assyrian plains are enumerated the olive, the white and black mulberries, the pomegranate, the fig, the cherry, the apricot, several sorts of plums, the peach, the almond, the apple, the pear, the quince, the cornel cherry, the jujube, the walnut, the pistachio, the chestnut, the filbert, and the great seeds of Pinus cembra.

JOHN MILTON.

John Milton was born in London, on the ninth of December, 1608.‡

His father, who was a scrivener, appears to have been very solicitous about his education, for he received his first instructions from a private tutor, Mr. Young, a man of considerable learning and abilities. He was then sent to St. Paul's School, whence he was removed, in his sixteenth year, to Christ's College, Cambridge, which he entered as a pensioner.

He was, at this time, a good Latin scholar; and, at the age of fifteen, versified two Psalms which he thought worthy of publication, but they did not give evidence of remarkable talent.

* Ainsworth's Assyria, Babylonia, and Chaldea, p. 33.

† Burckhardt, Addison, &c.

‡ The following is an extract from the Register of Baptisms of Allhallows Church, Bread Street, London:—"The 20th day of December, 1608, was also baptized John the Sonne of John Mylton, Scrivener."

Many of his elegies were written in his eighteenth year, and he had then read all the best Latin authors, so as to be familiar with their works. He was the first Englishman who, after the revival of polite literature, wrote Latin verses with classical elegance and purity. He took the degrees of Bachelor and Master of Arts, and, on leaving college, returned to the house of his father, who then resided at Horton in Buckinghamshire, where he remained five years. The greater part of this time was passed in reading Greek and Latin, but he found leisure to write the Masque of Comus which was acted at Ludlow, by the Earl of Bridgewater's sons and daughter. The idea of the plot of this exceedingly beautiful poem was suggested by an adventure that happened to the three children of this nobleman, who, in passing through Heywood forest, with some of their relatives, were benighted, and the daughter, Lady Alice Egerton, for a short time lost.

His next composition was "Lycidas," an elegy written on the death of the son of Sir John King, Secretary for Ireland. He is supposed about this period to have also written his "Arcades," for while living at Horton he occasionally passed a few days at the house of the Countess of Derby, at Harefield, where the "Arcades" formed part of a dramatic entertainment.

He now began to grow tired of the country, and had some thoughts of taking chambers in one of the Inns of Courts, when losing his mother, he determined to travel; and accordingly, in the year 1638, quitted England for the Continent. After visiting Paris, he went to Italy, and stayed two months at Florence, where his compositions met with great applause. He passed some time both at Rome and Naples. At the latter place, a hermit, with whom he accidentally became acquainted introduced him to Manso, Marquis of Villa, formerly the patron of Tasso. It was Milton's intention to have made the tour of Italy and Greece; but hearing of the dissension existing between Charles the First and the Parliament, he resolved to hasten his return home, because he could not bear to spend his life in amusements abroad, while his countrymen, in England, were contending for what he considered their rights. Some merchants informed him that the Jesuits had laid plots against him, because of his religious opinions: and he had besides offended them by visiting the great astronomer Galileo, then kept a prisoner by the Inquisition for his discoveries in astronomy, or, as it is termed, for philosophical heresy; but he, nevertheless, remained two months longer at Rome and went on to Florence without molestation. Having visited Lucca, Venice, and Geneva, where he became acquainted with John Diodati and Frederic Spanheim, two learned professors of divinity, he passed through France, and returned to his native country, after an absence of a year and three months.

He now engaged lodgings at the house of a tailor, in St. Bride's Churchyard, and undertook the education of his two nephews, John and Edward Philips. Finding his rooms too small he took a house and garden, in what was then one of the suburbs of London, but which is now in the heart of the city, and known by the name of Aldersgate Street. Here he received more boys to be boarded and instructed.

Dr. Johnson, speaking of this circumstance, says,—

"Let not our veneration for Milton forbid us to look with some degree of merriment on great promises and small performance, on the man who hastens home because his countrymen are contending for liberty, and when he reaches the scene of action, vapours away his patriotism in a private boarding school.

"This," he continues, "is the period of his life from which all his

biographers seem inclined to shrink. They are unwilling that Milton should be degraded to a schoolmaster; but since it cannot be denied that he taught boys, one finds out that he taught for nothing; and another that his motive was only zeal for the propagation of learning and virtue; and all tell what they do not know to be true, only to excuse an act which no wise man will consider as, in itself, disgraceful. His father was alive—his allowance was not ample; and he supplied its deficiencies by an honest and useful employment."

It is related that he performed wonders in the art of education, and a formidable catalogue is given of the Greek and Latin authors read by his pupils, between ten and fifteen years of age.

"But," to use the words of the great moralist before quoted, "those who tell or receive these stories should consider that nobody can be taught faster than he can learn. The speed of the horseman must be limited by the power of the horse. Every man that has ever undertaken to instruct others, can tell what slow advances he has been able to make, and how much patience it requires to recal vagrant attention, to stimulate sluggish indifference, and to rectify absurd misapprehensions!"

In his school, as in everything else which he undertook, Milton laboured with great diligence. In one respect at least he deserves general imitation, namely, the carefulness with which he instructed his scholars in the precepts and duties of religion. He himself set them an example of hard study and extreme temperance, except now and then when he passed a day of festivity with some friends who lived in Gray's Inn.

After a year and a half spent in sedulous attention to the duties of his new profession, Milton began to take a part in the controversies of the times, siding with the Puritans, for the following strange and unsatisfactory reason, that "they were inferior to the prelates in learning."

His father now came to reside with him, and assist in his increasing school. At the age of thirty-four he married the daughter of Mr. Powell, a justice of the peace in Oxfordshire, and brought her to London, anticipating much happiness in her society; but his hermit-like mode of life was uncongenial to her taste, and only a month after her marriage she begged to be allowed to return to her family and friends for the remainder of the summer; which request was granted, upon her promising to come back at Michaelmas.

When that period arrived, the lady showed no inclination to return to her husband. He sent her several letters, but receiving no answer, despatched a messenger, who was sent back with contempt. This conduct made him extremely angry, and he carried his anger so far as to determine on procuring a divorce from her whom he had married without sufficiently studying her character, and, as it is to be feared, without much affection. However, one day when at the house of a relation near St Martin's-le-Grand, he was surprised to see his wife rush into the room where he was sitting, and falling on her knees implore forgiveness.

For some time he was so forgetful of Christian duty as to resist her entreaties; but at last he promised to forget what had passed, and domestic peace was once more established.

He seems, at this period, to have changed sides in politics without any good reason; but whatever business occupied him, poetry was never long out of his thoughts, and in 1645 the "Allegro" and "Penseroso" made their appearance amongst a collection of his Latin and English poems.

His wife's father, brothers, and other relatives, who were royalists, being

now persecuted and in distress, he kindly allowed them all to take refuge in his house, where they remained until the death of Charles I.

After this event, Milton was made Latin Secretary to the Council of State, and became much involved in political disputes; writing and publishing many books against the views and opinions of the royalists, which were much admired and extensively read by that party which had overthrown the Church and murdered the King.

When about forty-four, Milton had the misfortune to lose his sight, which had long been failing. At the time that Cromwell assumed the title of Protector, he had been blind for several years, but such was the vigour of his intellect, that he continued to discharge the duties of his office, and to write on controversial subjects, as he had previously done.

He alludes to his loss of sight in one of the most beautiful passages of his "Paradise Lost":—

"Seasons return, but not to me returns
Day, or the sweet approach of ev'n or morn,
Or sight of vernal bloom, or summer's rose;
Or flocks, or herds, or human face divine;
But cloud instead, and everduring dark
Surrounds me, from the cheerful ways of men
Cut off, and, for the book of knowledge fair,
Presented with an universal blank
Of Nature's works, to me expung'd and ras'd,
And wisdom at one entrance quite shut out.
So much the rather, thou celestial light,
Shine inward, and the mind through all her powers
Irradiate, there plant eyes, all mist from thence
Purge and disperse, that I may see and tell
Of things invisible to mortal sight."

His first wife died in the year 1652, leaving him three daughters; and he not long afterwards married the daughter of a Captain Woodcock, of Hackney, of whom nothing is related by his biographers, except that she did not survive her marriage a year.

His agency in State affairs was considered of great importance; and upon one occasion, when a treaty with Sweden was artfully suspended, the reason publicly alleged for the delay was Milton's indisposition; whereupon the Swedish Ambassador, much irritated, said, "that he wondered there should only be one man in England who could write Latin, and that man blind!"

At the age of forty-seven he abandoned politics, and set about performing the three great works which he had planned for his future employment, namely, an epic poem, the history of his native country, and a dictionary of the Latin language.

The last two undertakings were never completed, owing to the difficulties which he encountered in their prosecution, in consequence of his blindness; although the dictionary, which he had commenced before he had the misfortune to lose his sight, continued to occupy his mind and powers almost to the time of his death.

But in writing his "Paradise Lost," so great was his store of knowledge of every description, that his loss of sight was hardly felt as a disadvantage.

On the restoration of Charles II., Milton was of course deprived of his office of Secretary, and was, or at least supposed himself to be, in danger on account of the democratic opinions which he had maintained.

Richardson relates, in his memoirs of this great poet, that he was taken

prisoner and condemned to death, when Davenant, whom Milton had by his exertions prevented from suffering a similar fate at the time the Republican party were in power, interfered, and was the means of preserving his life.

Another account is given by Cunningham in his "History of Great Britain," who tells us that Milton saved himself by pretending to be dead, and having a public funeral procession. "The King," adds this historian, "applauded his policy in escaping the punishment of death by a seasonable show of dying."

The publication of the Act of Oblivion relieved him from any further apprehension, and on his release from prison he removed to Jewin Street, in the City, and being blind and in want of a companion, married a third time. This does not appear to have been more fortunate than his two former marriages, for the lady, as Philips, one of his grandsons, relates, oppressed his children in his lifetime, and cheated them after his death.

The next year he published a short treatise on grammar, "which," says Dr. Johnson, "has nothing remarkable but that its author, who had been lately defending the supreme powers of his country, and was then writing 'Paradise Lost,' should descend from his elevation to rescue children from the perplexity of grammatical confusion and the trouble of lessons unnecessarily repeated."

About this time a Quaker, named Elwood, volunteered to read Latin to him for the advantage of his conversation. Milton required that Elwood should make himself familiar with the continental mode of pronouncing that language, as he could not bear to hear it read in any other manner. Elwood did as he was requested; and Milton, whose quick ear enabled him instantly to tell, by his companion's voice, whenever he did not understand what he read, would always stop and explain the difficult passage.

His time was now almost always occupied by his poem. When he had composed as many lines as he could well remember, he would employ any friend who might happen to be with him to write them down, so that the manuscript must have presented a curious variety of handwriting. He seems to have been possessed with the idea that he could only compose between the autumnal and vernal equinoxes. Some of his biographers state, that it was the spring and summer in which he wrote; but all seem to agree, that for some months of every year he believed that it was useless to invoke his muse, and during that period never attempted poetry.

When the plague raged in London, Milton went to Chalfont, in Buckinghamshire, where he first showed his friend Elwood a complete copy of the "Paradise Lost." Next year, when the danger of infection had ceased, he returned to his house in London, and having obtained a licence, which was at that time necessary, his poem was published. The manuscript was sold to a bookseller for the sum of five pounds, with a stipulation that he should receive five pounds more when thirteen hundred copies of the work, which first appeared in a small quarto edition, were sold, and also five pounds after the sale of the same number of each of two next editions.

It is a great mistake to imagine that Milton's works, during his lifetime, were unvalued or neglected; on the contrary, the sale of thirteen hundred copies in two years, notwithstanding the small number of readers,—the limited call for books in that day,—the odium incurred by the author from his adherence to the party of the Protector,—and the versification of the poem in a style, new to all, and disagreeable to many, is a striking instance of the triumph of genius.

To prove the paucity of readers, it may be mentioned that the public had

from 1623 to 1661, a period of forty-one years, been satisfied with only two editions of the works of Shakspeare, which, probably, did not, together, amount to a thousand copies.

The "Paradise Lost" continued steadily to advance in the good opinion of the public, although Milton's admirers did not dare to publish their praise until the commencement of the Revolution, when secrecy being no longer necessary, the work openly met with the approbation it so richly merited.

In the meantime he continued his studies; and not content with the assistance of friends, who eagerly caught at the opportunity of being his readers, he compelled his two younger daughters to perform the office, having taught them to read and pronounce the Hebrew, Syriac, Greek, Latin, Italian, Spanish, and French languages; so that they could read to him in whichever he pleased.

To be obliged, for hours, to read books of which they did not understand a single word, must indeed have been wearying and irksome, almost beyond the power of endurance. Yet it was borne by both for a long time, until, at length, the expressions of impatience and dislike of the employment, which they could not repress, caused Milton to dispense with their services; and the two girls, with their elder sister, who had only been excused on account of her bodily weakness and imperfection of speech, were sent to learn almost the only things which it was then deemed necessary or expedient women should be taught—needlework and embroidery.

Three years after the publication of the "Paradise Lost," his "Samson Agonistes," and "Paradise Regained," made their appearance. Milton himself states, that he wrote this last work in consequence of a remark made by his friend Elwood, who observed to him, "You have said a great deal about Paradise *lost*, what have you to say upon Paradise *found?*" Inferior as this poem is to its predecessor, it was Milton's favourite, and he could never bear to hear the preference given to "Paradise Lost."

His love for controversy now revived, and he wrote a tract against Popery.

He continued to write and publish works upon various subjects until within the last year of his life. At the age of sixty-five, he died of an attack of the gout, from which complaint he had long suffered, on the 10th of November, 1674, and was buried in the chancel of St. Giles' Church, Cripplegate. His funeral was very splendid and numerously attended.

Milton was below the middle stature, and in his youth so eminently handsome, that he was called the lady of his college. His hair, which was of a light brown colour, hung in curls upon his shoulders, according to the description he has given of Adam. Indeed it is said, that the entire portrait of Adam is drawn from himself, as that of Eve is from one of his wives.

In the earlier years of his life he was in the habit of studying late at night, but afterwards adopted the plan of retiring to rest at nine, and rising at four in summer, and five in winter.

The following account is given of the manner in which he passed the day, after he became blind:—

"When he first rose, he heard a chapter in the Hebrew Bible, and then studied till twelve; then took some exercise for an hour; then dined; then played on the organ, and sang or heard another sing: then studied till six then entertained his visitors till eight; then supped; and, after a pipe of tobacco and a glass of water, went to bed."

We cannot but suppose that this regularity was often interrupted.

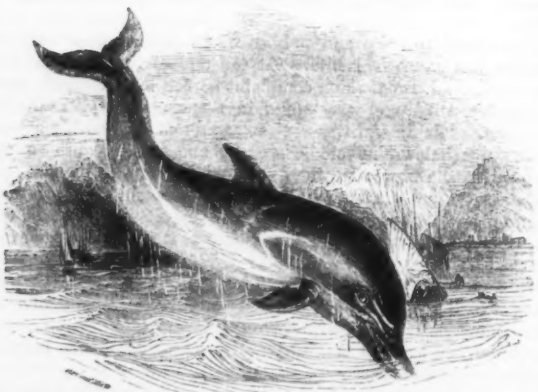
"He that lives in the world," remarks Dr. Johnson, "will sometimes have the succession of his practice broken and confused. Visitors, of whom Milton is represented to have had great numbers, will come and stay unseasonably; business, of which every man has some, must be done when others will do it."

Although his "Paradise Lost" was not commenced until he was considerably advanced in years, yet he seems, all his life, to have contemplated the undertaking some work that should be of use to, or confer honour upon, his country; and in a book published when he was thirty-two, after having promised to do so, he continues, "This is not to be obtained but by devout prayer to that Eternal Spirit, who can enrich with all utterance and knowledge, and sends out His Seraphim, with the hallowed fire of His altar to touch and purify the lips of whom He pleases. To this must be added industrious and select reading, steady observation, and insight into all seemly and generous arts and affairs; till which, in some measure be compassed, I refuse not to sustain this expectation."

Johnson observes of Milton, that he seems to have been well acquainted with his own genius, and to know what it was that nature had bestowed upon him more bountifully than upon others: the power of displaying the vast, illuminating the splendid, enforcing the awful, darkening the gloomy, and aggravating the dreadful.

And Cowper, when speaking of the style of this great poet, remarks with great truth, "that he is never quaint, but everywhere grand and elegant, without resorting to musty antiquity for his beauties. On the contrary, he took a long stride forward—left the language of his own day far behind him—and anticipated the expressions of a century yet to come."

THE DOLPHIN.



The common Dolphin (*Delphinus delphis*, Linn.) is familiar to fishermen and mariners, being found abundantly around the British shores, and all over the Atlantic and Mediterranean. Its beautiful and graceful form, the extraordinary fleetness with which it darts through the waters, its agile gambols and leaps, and its social habits, render it attractive to

every voyager. They are fond of accompanying a ship, even for many miles. We have often been amused with them. No sooner do we discern a "shoal" or "school" of Dolphins frolicking, perhaps a mile or two distant, than we see them having caught sight of the ship, come trooping down with the velocity of the wind, impelled by curiosity to discover what being of monstrous bulk thus invades their domain. Arrived, they displayed their agility in a thousand graceful motions, now leaping with curved bodies many feet into the air, then darting through a wave with incredible velocity, leaving a slender wake of whitening foam under the water; now the thin dorsal fin only is exposed, cutting the surface like a knife; then the broad and muscular tail is suddenly elevated as the animal plunges perpendicularly down into the depth, or rises beneath the keel to explore the opposite side. So smooth are their bodies, that their gambols are performed with surprisingly little disturbance of the water, and even when descending from their agile somersets, they make scarcely any splashing. It was this playfulness and sociality, doubtless, that made the dolphin so great a favourite with the ancients; the poets abounding with beautiful fables of its docility and love of man.

The dolphin produces but a single young one at a time, which she suckles with care and tenderness. The milk is abundant, and of a creamy richness. Its flesh was formerly considered so great a delicacy as to be frequently served at civic feasts. We have tasted it repeatedly, and found it, though dark, tender and not disagreeable.

UNIONS AND COMBINATIONS.

Unions are usually managed by a committee, which, in many cases, is invested with absolute power, and can exercise its authority in ordering strikes, without any regard for their fellow-workmen, who suffer by them; and it has more than once done so, contrary to the wishes and inclinations of the men, who are often satisfied with the amount of their wages when the committee is not so. The ceremonies of admission into these unions are of very awful description. Oaths are administered, binding the takers of them to forward to the utmost of their power the objects of the combination; but, what is much worse than this, some unions have imposed the most wicked and atrocious oaths, recognising the principle of compelling people to join the union, and actually sanctioning the assassination of oppressive and tyrannical masters.*

It is not difficult to understand that a system thus based upon violence should lead to acts of violence; and, accordingly, such has been the result, as the following examples will show:—

In 1829, a Manchester manufacturer, named Ashton, was shot at, and

* The following is the oath that was taken by the combined spinners in Scotland, in 1823:—

"I, A. B., do voluntarily swear in the awful presence of Almighty God, and before these witnesses, that I will execute with zeal and alacrity, as far as in me lies, every task or injunction which the majority of my brethren shall impose upon me, in furtherance of our common welfare; as the chastisement of knobs, the assassination of oppressive and tyrannical masters, or the demolition of shops that shall be deemed incorrigible; and, also, that I will cheerfully contribute to the support of my brethren who shall lose their work in consequence of their exertions against tyranny, or renounce it in resistance to a reduction of wages," &c.

killed. In 1823, a Scottish union attacked the lives of individuals who refused to join them; there were four instances of deliberate attempts at assassination, and two to burn cotton mills. One man confessed that he had been employed to murder some of the masters, who had incurred the displeasure of the union; and that, for the attempt, he was to receive 100*l*. If he succeeded in murdering his victims, he was to receive more!

In 1833, at Glasgow, a woman named Macshaffery, a cotton-stretcher, while about entering a street leading to her residence, was met by some men, one of whom threw into her face and on her clothes a quantity of vitriol, whereby one of her eyes was entirely destroyed, and her face otherwise severely injured. On the same day, a man named Millar, a foreman in the cotton-spinning trade, was attacked on his way home, and struck with a heavy sharp weapon, which wounded him on the head, and felled him to the ground.

I will conclude this account of the fearful crimes to which these combinations lead, by relating one or two more instances which have occurred so lately as the year 1840.

In the month of October, of that year, a strike occurred amongst the sawyers at Ashton-under-Lyne. Their employers had found it necessary, on account of a depression in the trade, to reduce their wages to the same scale as those of workmen employed in the same labour at Manchester; and, on their announcing the intention, the men refused to continue at their work. Upon this, some of the masters, being deserted by their regular workmen, engaged others in their places. These men judged the demands of their brother workmen to be unreasonable, and the wages offered to be fair, otherwise they would not have engaged themselves; and, surely, in a free country men have a perfect right to work for what wages they choose. The turn-outs, however, determined to prevent the others from exercising this just right. They assembled in crowds before the houses of the employers, and paraded the streets, using intimidating and abusive language to the new workmen. They endeavoured, also, to terrify the men's wives, declaring that they would knock their husband's brains out; and, in one instance, they showed a poor woman a sack, telling her it was to put her husband's body in.

About a fortnight after the strike, as four of the new workmen were returning home, they were waylaid and attacked by a number of ruffians, and one of them, named Garland, was beaten to death.

On the 20th of October, a hole was made in the door of the house of one of the employers, and several pounds of gunpowder were poured into it through a funnel, evidently with the intention of blowing up the house; but the villains were interrupted by the watchman, who gave an alarm; and for this act of duty he was dreadfully beaten by three men with blackened faces.

Some while afterwards a gun, loaded with small shot, was fired at the place where two of the new workmen were usually employed; and had it not chanced that both of them were at the time at the bottom of the pit, the top-sawyer must inevitably have been killed.

It was on the 11th of December that the most dreadful deed was perpetrated. Two workmen, Benjamin and James Cooper, were engaged, soon after dusk, in their occupation in the yard, in the very heart of the town. Benjamin was at the top, and had a candle fixed on his leg, in order that he might see the line marked on the wood. As they were thus employed, a tremendous explosion was heard, which alarmed the whole neighbourhood,

and it was found that a murderous engine, loaded with slugs, had been fired through the crevices of the shed in which the men were employed. Four slugs entered the body of Benjamin Cooper. The poor man being carried by his brother to his lodgings, lingered for two hours in great agony, and then expired, calling on God to provide for his widowed wife and family.

Such, my friends, is the atrocious wickedness to which, in many instances, these diabolical unions have led.

Speaking generally, workmen have a perfect right to bargain with their employers for the wages of labour; though, of course, if workmen demand more than is reasonable, or masters persist in offering less than is reasonable, the unreasonable party is morally wrong. Christians ought to be just and liberal to each other. Even their temporal interests will soon enable them to come to terms, if they act with moderation; but neither party can be justified in using violence or unlawful means to accomplish their object, even if it should be just. In the cases before us, nothing can be more unjust than the whole proceeding. Because a small number of men are dissatisfied with their wages, double, triple, nay, quadruple their number must be deprived of their lawful means of subsistence. The freedom of action of our fellow-creatures is set at nought; and inasmuch as a man does not choose to do that which is manifestly wrong by his employers, and detrimental to his own interests, he is liable to persecution, and even to death, at the wills of a band of misguided men, whose doings must inevitably end by bringing ruin upon themselves.

SHORT ACCOUNT OF ENGLISH TRANSLATIONS OF THE BIBLE.

We have accounts of various parts of the Bible being translated into Saxon, when that language was spoken in England.

The Psalms were translated by Adhelm, the first Bishop of Sherborne (A. D. 706). The Four Gospels, by Egbert, Bishop of Lindisfern, who died A. D. 721.

The Venerable Bede also translated various parts, if not the whole of the Bible into Saxon. King Alfred translated the Psalms, and Elfric, Abp. of Canterbury, parts of the Old Testament, about A. D. 995.

English translations of the Bible were also made in the thirteenth and fourteenth centuries. But of the complete English translations of the Bible the first was:—

Wichliffe's Bible, about A. D. 1380. This was before printing was invented; transcripts therefore were obtained with difficulty, and copies were scarce. Before Wickliffe's translation, the price of a Bible in Latin, an unknown tongue to all but the learned, was as much as a labouring man's price of work for fifteen years, and equal to 300*l.* of our money. Even after Wickliffe's own copy was finished, the value of a New Testament was 2*l.* 16*s.* 6*d.*, equal to 30*l.* now. (Gilly's Protestant Forefathers.)

In 1390, the 13th year of Richard II., a bill was brought into the House of Lords for the purpose of suppressing it, but through the influence of John o'Gaunt, Duke of Lancaster, the king's uncle, was rejected. The followers of Wickliffe were then encouraged to publish another and more correct translation of the Bible. But in the year 1408, in a convocation held at Oxford by Archbishop Arundel, it was decreed that no one should thereafter translate any text of Holy Scripture into English by way of a book, or little work, or tract; and that no book of this kind should be read, that was composed lately in the time of John Wickliffe, or since his death.

This constitution led the way to great persecution; and many persons were punished severely, and even with death, for reading the Scriptures in English.

Tindal's New Testament (A. D. 1526). This was the first *printed* edition of any part of the Scriptures into English. He had taken the precaution of printing it on the Continent; but Tonstall, Bishop of London, and Sir Thomas More, Lord Chancellor, succeeded in buying up and burning almost the whole impression. This enabled Tindal to publish an improved edition. He also translated parts of the Old Testament.

In the year 1531, at the instigation of Henry VIII. and his council, he was imprisoned, and after a long confinement strangled, A. D. 1536, by order of the Emperor, at Villefont, near Brussels, and his body reduced to ashes.

Miles Coverdale's Bible (A. D. 1535). Coverdale, afterwards Bishop of Exeter, published a translation of the Bible (the greater part of which was Tindal's), and dedicated it to King Henry the Eighth. This is the first English Bible allowed by royal authority, and a copy of it was by royal proclamation ordered to be placed in the choir of every parish church, to enable every man to read therein.

Matthews' Bible (A. D. 1537). John Rogers, who assumed the name of Thomas Matthews, and who had assisted Tindal in his biblical labours, edited a Bible, probably at Hamburgh.

Taverner's Bible (A. D. 1539). This was a kind of intermediate work, being a correction of Matthews' Bible

The Great Bible (A. D. 1539). This was a revised edition, corrected by Cranmer and Coverdale, and so called because printed in large folio. There were several editions of it, and particularly one in 1540, for which Cranmer wrote a preface, showing that "Scriptures should be had and read of the lay and vulgar people;" hence this edition of 1540 is called Cranmer's Bible.

During the reign of Edward VI. (a period of seven years and a half) no new versions were executed, though eleven editions were printed both of the Old and New Testament.

The Geneva Bible (A. D. 1560). Coverdale, John Knox, Christopher Goodman, and other English exiles, who had taken refuge in Geneva, published this translation; the New Testament in 1557, and the remainder of the work in 1560. To it were added notes, favouring the peculiar doctrines of Calvin.

Abp. Parker's, or the Bishops' Bible (A. D. 1568). This was so called because he, with other learned persons, eight of whom were Bishops, published this translation. This was in the reign of Queen Elizabeth.

The Rhemish New Testament (A. D. 1582). This translation into English was published by the Romanists at Rheims. They retained many Eastern, Greek, and Latin words, and introduced so many difficult expressions, that they contrived to render it unintelligible to the common people. Shortly after,

The Douay Old Testament (A. D. 1609-10). Cardinal Allen is understood to have had a principal share in this work. The Rhemish New Testament and Douay Old Testament form the present English Bible of the Romanists.

King James's Bible. This is the English translation of the Bible now in common use. It was begun in the spring of 1607, in the reign of King James I., and finished in about three years. Fifty-four of the most learned

men in the universities and other places were commissioned to undertake the work of translation; but seven of these having, from illness and other causes, relinquished their task, the work was performed by forty-seven. The translators were ranged under six divisions, and several portions of the Bible were assigned to them, according to the several places where they were to meet, confer, and consult together. The name which stands at the head of the list of translators is that of Dr. Lancelot Andrews, first Fellow, and afterwards Master of Pembroke College, Cambridge. He was at that time Dean of Westminster, and became Bishop successively of Ely and Winchester. After long expectation and great desire of the nation, the translation of the Bible came forth in the year 1611, the divines employed having taken the greatest pains in conducting the work; for they had not only examined the original, but also compared together all the existing translations, both ancient and modern.

As the free circulation of the Scriptures in the language of any country has ever been one of the most important instruments in implanting true religion where it did not previously exist, and in awakening a revival of it where it has become decayed, our privileges in this respect ought to awaken in us a solemn sense of our responsibility to make that book a lamp to our feet, and light to our path, which the providence and grace of God have rendered so accessible.

SPENSER'S DESCRIPTION OF A GROVE.

1

Enforced to seek some covert nigh at hand,
A shady grove not far away they spied,
That promised aid the tempest to withstand;
Whose lofty trees, yclad with summer's pride,
Did spread so broad, that heaven's light did hide,
Not pierceable with power of any star;
And all within were paths and alleys wide,
With footing worn, and leading inward far:
Fair harbour, that them seems; so in they entered are.

2

And forth they pass, with pleasure forward led,
Joying to hear the birds' sweet harmony,
Which therein shrouded from the tempest dread
Seem'd in their song to scorn the cruel sky.
Much can they praise, the trees so straight and high;
The sailing Pine, the Cedar proud and tall,
The vine-prop Elm, the Poplar never dry,
The builder Oak, sole king of forests all;
The Aspen good for staves, the Cypress funeral.

3

The Laurel, meed of mighty conquerors,
And poets sage, the Fir that weepeth still,
The Willow, worn of forlorn paramours;
The Yew, obedient to the bender's will,
The Birch for shafts, the Sallow for the mill,
The Myrrh, sweet bleeding in the bitter wound,
The warlike Beech, the Ash for nothing ill,
The fruitful Olive, and the Plaintain round,
The carver Holme, the Maple seldom inward sound.

WILD FLOWERS.

COMMON BROOM. (*Cytisus Scoparius.*)

As the wood has flowers peculiar to it, and the meadow and the corn-field have each their own blossoms, so there are some plants which flourish especially on heaths and commons. Far away, over many a heath-land, we may see the bright golden blossoms of the "bonnie broom;" and if, on some sunny day in July, we stray among them, we may see the large dark brown Broom-pods opening to let out their ripe seeds. The blossoms seem to invite the butterflies to linger about them, and the bees keep a perpetual humming near them. The Broom is useful also to man. Sometimes when roads are cut down it is planted on the sides of the banks that its roots may hold the crumbling earth together. The bark is steeped in water that its fibres may be used instead of flax, and the small twigs and branches are serviceable in tanning leather. The young boughs are made into brooms, and the young green buds are pickled in vinegar, and eaten as capers. When the shrub attains a good size its wood is hard, and is valuable to the cabinet-maker for veneering. The plant varies much in height, according to the soil and situation on which it grows. When it is found on exposed heaths it is usually a low shrub; but when it springs up on some sunny hill-side, or is sheltered by a neighbouring rock or thicket, it is sometimes ten or twelve feet high. It is always an ornamental plant, for when its

flowers have passed away, its dark green leaves and twigs remain. Wordsworth well describes it:—

"Am I not
In truth a favour'd plant?
On me such bounty summer showers,
That I am cover'd o'er with flowers;
And when the frost is in the sky,
My branches are so fresh and gay,
That you might look on me, and say—
'This plant can never die.'"

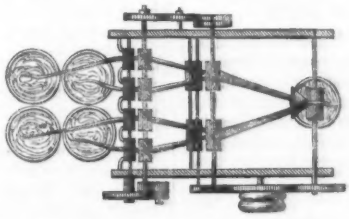
THE USEFUL ARTS AND MANUFACTURES OF GREAT BRITAIN.

COTTON MANUFACTURE—*continued.*

DOUBLING AND DRAWING.

THE fibres of the cotton are not yet sufficiently level to be twisted into yarn; and it often happens that the teeth of the card lay hold of a fibre by the middle, and thus double it together, in which state it is unfit for spinning. The cardings are therefore doubled and drawn out by a machine called the *drawing* frame, the principle of which depends upon different pairs of rollers revolving with different degrees of rapidity, as already noticed. If, however, the riband, as it leaves the carding-engine, were simply extended in length by drawing it out, it would be liable to tear across, or to be of a different thickness at different parts of its length. To prevent the tearing, and to equalize the thickness, a number of cardings are joined together, and drawn out to a length equal to the sum of the lengths of all the separate cardings. The effect produced is the same as taking a piece of cotton-wool between the finger and thumb, and drawing it out many times, laying the drawn filaments over each other, before each drawing. If the cotton be then examined, it will be found that all the fibres are parallel, and of equal length. This effect is accomplished very perfectly in the drawing-frame, which consists of a number of rollers, arranged in what are called *heads*, each head consisting of three pairs of rollers, of which the second pair moves with greater speed than the first, and the third moves quicker than the second. Drawing rollers are used in several machines which have yet to be noticed; their arrangement and mode of action may therefore be further explained.

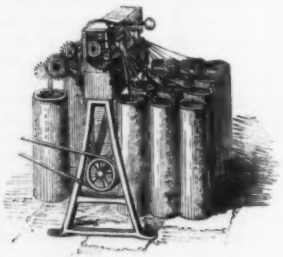
The accompanying figure represents the arrangement of one drawing-head. The under rollers are made of iron and



fluted; the upper ones, also of iron, are smooth, and covered first with flannel and then with leather. This enables the rollers to take firm hold of the cotton. The top rollers are sometimes called *pressers*, because they press, by means of weights, upon the under ones. These weights are hung to a curved hook, or to a saddle, which includes two or more rollers. A mahogany bar, faced with flannel, rests, by its own weight, upon the top rollers, and strips off all the loose, hanging fibres. Similar bars are also made to press up against

the under fluted rollers. The distance between the first and second pairs of rollers is never allowed to exceed the length of the cotton filaments, for if such were the case, the riband might be torn apart by the second pair pulling it while the first held it fast. The riband is stretched most in passing from the second to the third pair, the distance between which must not be too great, for the reason just stated, nor too small, or the staple will be torn.

The cardings are sometimes presented to the drawing-frame in the form of laps, or more usually they are taken up from separate cans, and guided over a tin or brass plate containing a number of separate channels. They all meet and unite together just before passing between the first pair of rollers, which reduces them all into one sliver; the second pair extends every inch of its compound sliver into about two inches, and the third pair of rollers extends these two inches into ten: so that, suppose ten slivers from ten separate cans enter the frame on one side, the result is, that, after passing through the rollers, a single sliver is produced of the same thickness as one of the ten slivers, but of ten times the length; the ten slivers are, in fact, united into one, and this being passed between two smooth cast-iron rollers, to condense it, is allowed to fall into a can on the opposite side of the frame.



DRAWING. (12 INTO 1.)

By repeating this process again and again, it will be easily seen that the chances of uniformity in the sliver are greatly multiplied; for the defects of individual slivers are absorbed and got rid of. When ten of the cans are filled with the compound sliver, they are passed on to a second drawing-head, and the ten *drawings*, as they are now called, are again doubled, and drawn out into one. Twelve of these are then doubled, and drawn out at a third head; twelve of these are doubled again, and again drawn out at a fourth head; and, lastly, six of these are doubled, and drawn out at a fifth head.

Thus it will be seen, that, by collecting all these numbers together, the doubling of the fibres of the cardings have been multiplied no less than 86,400 times; for $10 \times 10 \times 12 \times 12 \times 6 = 86{,}400$. The drawing is carried to this extent only in fine spinning. For coarse numbers, the doubling and drawing are not repeated so often. Six card-ends are usually passed through the first drawing-head, and formed into one riband. Six of these ribands are again formed into one; six of these again make a third sliver, and five of these pass through the last drawing-head. Thus we have $6 \times 6 \times 6 \times 5$, or 1,080 of the original card-ends united in the finished drawn sliver.

This doubling and drawing process is of the greatest importance, the quality of the yarn depending upon its being well done. Arkwright is the inventor of it; and it is related of him, that, when any defects appeared in his yarns, he told his people to look to their drawings, for, if they were right, everything else would be so too.

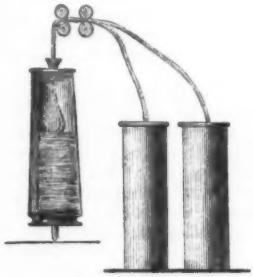
The drawing-frames require constant watching, to see that none of the cans are emptied before full ones are ready to supply their place.* The labour is performed by young women, who are kept pretty actively at work. A contrivance has been introduced which greatly abridges the labour. A cylindrical plunger is made to fall at intervals into the receiving-can, and by pressing down the sliver, enables the can to hold a much greater quantity than it would do if the sliver were left to fall loosely into the can. Further improvements have lately been made, by which the sliver is regularly and beautifully coiled in the

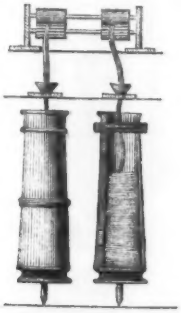
* By a recent invention, in case of the breaking of any sliver, or the emptying of a can, so as to lessen the number of the slivers, the machine is made to stop instantly; thus requiring much less attention, and insuring a greater uniformity in the thread.

can, and compressed at the same time but without at all stretching the slive

ROVING.

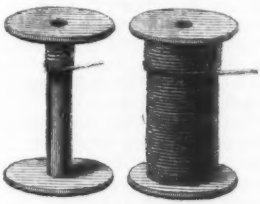
By the process of doubling and drawing, the cotton is formed into a loose porous cord, the fibres of which are arranged side by side. This cord it still much too thick for yarn, but it cannot be reduced in size by drawing merely, for if this were attempted it would break; a slight twist is therefore given, which, by condensing the fibres, allows the drawing to proceed. This is the commencement of the spinning process (which is, in fact, little more than a combination of drawing and twisting), and is called *roving*. Up to





a recent period, the roving-machine, as introduced by Arkwright, was in use, but it is now superseded by better and more complicated mechanism. The roving-machine of Arkwright did not differ greatly from the drawing-frame. It consisted of two pairs of drawing-rollers, for extending the slivers, of which two were generally doubled and united. The sliver, as it quitted the drawing-rollers, was received into a can, which was made to spin rapidly round, and this, by giving a slight twist to the sliver, formed the roving, and distributed it in a coil within the can. Thus far all was well, but it was necessary for the next process that the roving should be wound upon bobbins; the can, when full, was therefore carried to a simple machine, and wound by hand, by which it was scarcely possible to avoid injuring the delicate cord, and hence the quality of the yarn suffered. This led to the introduction of the *Jack frame*, or *Jack-in-the-box*, as it was more familiarly called, and afterwards to the *bobbin-and-fly frame*, which may now be considered as the established roving-machine of the cotton manufacture.

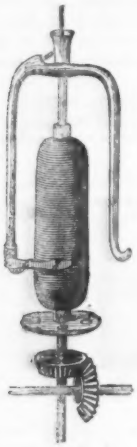
The bobbin-and-fly frame is an exceedingly complicated machine, although the objects to be accomplished by it are sufficiently simple; namely, to give the roving a slight twist, and then to wind it on the bobbin. The



BOBBINS.

first is easily done by the revolutions of the spindle; the second is more difficult. It is scarcely necessary to explain, that the bobbins now under notice differ in no way from the reels in common use, except in being of very large size. The spindle, which holds the bobbin, is a round steel rod, driven by a small cog-wheel, fastened on the lower part of the spindle, as shown in the next figure. The bobbin is slid upon the spindle, and the small bed, or platform, on which it rests, is made to revolve by another series of small wheels, not shown in the figure. The spindle has two arms, called the

fly or *flyer*. This fly is fixed on the top of the spindle in such a way, that it can be taken off in an instant, for the purpose of putting on or taking off the bobbin. One arm of the fly is



hollow, the other solid, and this serves to balance the machinery. One machine contains from thirty to a hundred and twenty spindles, which, for economy of space, are placed in two rows, each spindle in the back row standing opposite the space left between two spindles of the front row.

The action of the machine is this: The sliver having been drawn by the rollers, is twisted, by the rapid revolutions of the spindle, into a soft cord or roving: this enters a hole in the top of the spindle, and passes down the hollow arm of the fly; it is then twisted round a steel finger, which winds it on the bobbin with a certain pressure. This spring finger is a beautiful contrivance by Mr. Houldsworth. Before this invention, the rapid motions of the fly caused the roving to become improperly stretched by the centrifugal force, but this is now prevented by twisting the roving round the finger: by its pressing the soft roving on the bobbin, each bobbin is made to hold a much larger quantity. All this seems to be sufficiently simple; but the difficulties begin to appear when it is considered, that the delivering finger must move up and down, so as to wind the roving evenly over the bobbin, and that, as the bobbin increases in thickness, a difference in speed is necessary to prevent the roving from being improperly stretched or broken. The first object is attained by making the bobbin slide up and down on the spindle, and the second by causing the strap which drives the bobbin to act on a conical instead of a cylindrical drum; thus giving to the movement a varying instead of an equal degree of speed.

It will be seen, that the spindle and bobbin are driven by different movements. This is necessary, because, if they both moved at the same rate, the roving would be twisted merely, and not wound upon the bobbin; but, by making the bobbin revolve a little quicker than the spindle, the winding is accomplished. For example, if the bobbin revolves fifty times, while the spindle only revolves forty, forty turns of the bobbin will have nothing to do with winding; but there are ten turns of the bobbin above those of the fly, which will perform the winding. Hence, the forty turns of the spindle produce twist, while the fifty turns of the bobbin produce ten coils of the roving upon its barrel.

In fine spinning, two rovings are doubled and passed a second time through the frame, where they receive a further degree of drawing and twist.

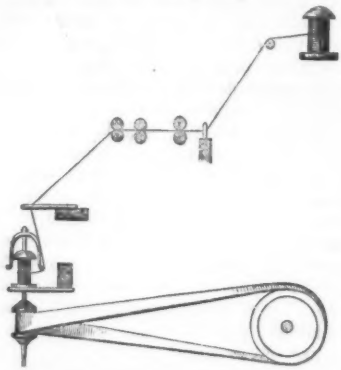
The bobbin-and-fly frame is superintended by a female, whose duty it is to join the broken slivers, to remove the full bobbins, and to place empty ones in their stead.

In fine spinning, the rovings are sometimes prepared at what is called the *stretching-frame*, which is a kind of mule-jenny, to be noticed presently; but usually the rovings are finished at one of two machines, namely, the *throstle* and the *mule-jenny*. It may be stated, as a general rule, that the throstle spins warp, and the mule weft; there are, however, many exceptions to this.

THROSTLE SPINNING.

It has been already noticed, that Arkwright's water-frame was partially superseded by the mule-jenny, but that, as it was capable of producing

a strong wiry thread, well-adapted for warps, it was introduced in an improved form, under the name of the *throstle*. This machine is usually made double, a row of bobbins, spindles, &c., occupying each side of the frame. The bobbins, filled with rovings from the bobbin-and-fly frame, are mounted at the upper part of the frame in two ranges. The roving from each bobbin passes through three pairs of drawing rollers, where it is stretched out to the requisite fineness. On quitting the last pair of rollers, each thread is guided by a little ring, or a notch of smooth glass let into the frame, towards the spindles, which revolve with great rapidity, producing, by the motion of their flyers through the air, a low musical hum, which is supposed to have given the name of *throstle* to this machine. The roving,



which may now be called *yarn*, passing through an eyelet formed at the end of one of the arms of the flyer, proceeds at once to the bobbin.

The yarn is wound upon the bobbin by a curious contrivance. The bobbin fits very loosely upon the spindle, and rests on its end upon a kind of platform. The bobbin is not connected with the spindle except by the thread of yarn which has to be wound; therefore, as soon as the flyer is set spinning, the thread drags the bobbin after it, and makes it follow the motion of the spindle and fly: but the weight of the bobbin, and its friction on the platform, which is promoted by covering the end with coarse cloth, causes it to hang back; and thus the double purpose is served of keeping the thread stretched and winding it on the bobbin much more slowly that the flyer revolves. The yarn is equally distributed on the bobbin by a slow up-and-down motion of the platform.

These effects are the same as were produced by the bobbin-and-fly frame, but in the throstle they are attained by simpler means. In the former machine, a distinct movement caused the bobbin to revolve quicker than the spindle. In the throstle, the bobbin is made to revolve by the pull of the yarn, which is now sufficiently strong for the purpose; but the roving in the bobbin-and-fly frame would not bear the strain.

A throstle-frame generally contains from 70 to 150 spindles on each side. The drawing-rollers extend the whole length of the frame. The top rollers are, as usual, covered with leather, and the thread passes over a guide bar, which has a slight horizontal movement, for the purpose of leading the thread over different points of the rollers, and thus preventing the leather from being chafed by constant pressure on one spot. One young woman and an assistant attend to from 140 to 300 spindles in two double frames; their duties are to mend broken threads, and shift the bobbins as required.

(*To be continued.*)

REV. WILLIAM TYNDALE.

MARTYR, 1536.

Few men more essentially promoted the cause of the Reformation in England than did Tyndale, by publishing his translation of the New Testament from the original Greek into English. With Miles Coverdale he commenced translating the Pentateuch, and subsequently the book of the prophet Jonas, which, with the New Testament, previously translated by him and others, formed the whole of his labours on the Scriptures; for which good work he was strangled, and his body burned.

Towards the close of his life he retired to Antwerp, where he reserved or hallowed to himself two days of the week, which he named his days of pastime, and those were Monday and Saturday. On the Monday he visited all such poor men and women as were fled out of England; and those he did very liberally comfort and relieve, and in like manner provided for the sick and diseased persons. On the Saturday he walked round about the town, seeking out every corner and hole where he suspected any poor person to dwell; and where he found any who were overburdened with children, or were aged or weak, those also he plentifully relieved. And thus every week he spent his two days of pastime as he called them.

The dreadful spirit of the times would not leave Tyndale unmolested at Antwerp, where one Phillips was employed to betray him to the emperor's procurator, by whom Tyndale was taken to the castle of Filford, eighteen miles from Antwerp. He refused to employ any advocate, saying, that he would answer for himself; and so he did: although he deserved no death, he was condemned, and put to death.

He had himself written about the blessedness of Faith as a preparation for death. Let us use the following as a precept: "Above all things, take unto you the shield of faith, wherewith ye may be able to quench all the fiery darts of the wicked, that ye may be able to resist in the evil day of temptation, and especially at the hour of death."

LONDON.

FEW people know that in every seven minutes of the day and night a child is born in London, and that in every nine minutes one of its inhabitants dies! The population of London, is, roundly, 2,362,000. If the averages of the past fifty years continue, in thirty-one years from this time as many persons as now compose its population will have died in it, and yet in about thirty-nine years from this time, if the present rate of progress continue, the metropolis will contain twice as many persons as it does now. The whole population of Liverpool in 1851 numbered 255,000; while the *increase* of inhabitants in London between 1841 and 1851 was 413,000. It is truly marvellous! Where it will stop, and how food and shelter are provided for these masses, are subjects of speculation.